What is claimed is:

1. In a first data communication device that receives data from a second data communication device over a network, a method comprising:

detecting an actual bandwidth associated with receiving data from the second data communication device;

generating a bandwidth metric based on the actual bandwidth associated with receiving the data, the bandwidth metric identifying a proposed data rate for transmitting future data from the second data communication device to the first data communication device; and

transmitting the bandwidth metric to the second data communication device.

2. A method as in claim 1, wherein detecting the actual bandwidth includes:

receiving data from the second data communication device; and

measuring a rate of receiving the data from the second communication device.

3. A method as in claim 2 further comprising:

identifying a round trip time associated with communications between the first data communication device and the second data communication device;

generating the bandwidth metric based on the actual bandwidth as well as the round trip time associated with communications between the first data communication device and the second data communication device.

4. A method as in claim 1 further comprising:

receiving the data from the second data communication device i) in accordance with the proposed data rate identified by the bandwidth metric, and ii) based on use of a non-acknowledgment data transmission protocol.

5. A method as in claim 1 further comprising:

receiving the data from the second communication device based on use of UDP (User Data Protocol).

6. A method as in claim 1, wherein the first data communication device is a thin client in which a majority of data processing associated with a user at the thin client is performed at the second data communication device, the method further comprising:

utilizing the data received from the second data communication device to control a human interface device associated with the thin client.

7. A method as in claim 1, wherein generating the bandwidth metric is performed in response to receiving a request for bandwidth allocation received from the second data communication device.

8. A method as in claim 1 further comprising:

receiving multiple bandwidth allocation requests associated with multiple processes maintained at the second data communication device, the multiple processes generating independent sets of data for transmission to the first data communication device; and

granting bandwidth, via transmission of multiple bandwidth metrics, to the second data communication device for streaming the independent sets of data associated with the multiple processes from the second data communication device to the first data communication device.

9. A method as in claim 1 further comprising:

in addition to transmitting the bandwidth metric to the second data communication device, providing a unique identifier along with the bandwidth metric for use by the second data communication device to tag the future data

transmitted from the second data communication device to the first data communication device.

10. A method as in claim 9 further comprising:

measuring a round trip time associated with communications between the first data communication device and the second data communication device based at least on part on a time difference between transmitting the bandwidth metric to the second data communication device and receiving a data packet from the second data communication device including the unique identifier; and

generating the bandwidth metric based on the actual bandwidth as well as the measured round trip time associated with communications between the first data communication device and the second data communication device.

11. A method as in claim 10, wherein measuring the round trip time includes:

measuring a time difference between transmitting a message to notify the second data communication device of the unique identifier and receiving a first data packet from the second data communication device including the unique identifier.

12. A method as in claim 1, wherein generating the bandwidth metric includes:

measuring a round trip time associated with communications between the first data communication device and the second data communication device; and

setting the bandwidth metric to be a higher value than the actual bandwidth if the measured round trip time is below a threshold value.

13. A method as in claim 1, wherein generating the bandwidth metric includes:

measuring a round trip time associated with communications between the first data communication device and the second data communication device; and

setting the bandwidth metric to be a lower value than the actual bandwidth if the measured round trip time is above a threshold value.

14. A method as in claim 1, wherein generating the bandwidth metric includes:

calculating the bandwidth metric based at least in part on: i) a current measured round trip time associated with communications between the first data communication device and the second data communication device, ii) a previously measured minimum round trip time associated with communications between the first data communication device and the second data communication device, and iii) and a highest measured actual bandwidth associated with data received from the second data communication device.

15. A method as in claim 1, wherein generating the bandwidth metric includes generating the bandwidth metric based on a formula as follows:

$$\text{bandwidth metric} = \frac{(\text{currRTT} + \text{minRTT} + \text{MSDELAY}) * \text{avgbw}}{(2 * \text{currRTT})},$$

wherein currRTT = a current measured round trip time associated with communications between the first data communication device and the second data communication device;

wherein minRTT = a previously measured minimum round trip time associated with communications between the first data communication device and the second data communication device during a communication session;

wherein avgbw = a highest previously measured actual bandwidth associated with data received from the second data communication device; and

wherein MSDELAY = C + n * minRTT, where C is a constant and n is an integer.

16. A method as in claim 15, wherein the current measured round trip time and the previously measured round trip time take into account a time associated with the second data communication device i) receiving a first communication from the

first data communication device and ii) transmitting a second communication, in response to receiving the first communication, to the first data communication device.

17. A first data communication device that adaptively allocates bandwidth to a second data communication device for transmitting data over a network susceptible to congestion, the computer system including:

a processor;

a memory unit that stores instructions associated with an application executed by the processor;

a communication interface that supports communication with nodes in the network; and

an interconnect coupling the processor, the memory unit, and the communication interface, enabling the first data communication device to execute the application and perform operations of:

detecting an actual bandwidth associated with receiving data from the second data communication device;

generating a bandwidth metric based on the actual bandwidth associated with receiving the data, the bandwidth metric identifying a proposed data rate for transmitting future data from the second data communication device to the first data communication device; and

transmitting the bandwidth metric to the second data communication device.

18. The first data communication device as in claim 17, wherein the operation of detecting the actual bandwidth includes:

receiving data from the second data communication device; and

measuring a rate of receiving the data from the second communication device.

19. The first data communication device as in claim 18 further performing an operation of:

identifying a round trip time associated with communications between the first data communication device and the second data communication device;

generating the bandwidth metric based on the actual bandwidth as well as the round trip time associated with communications between the first data communication device and the second data communication device.

20. The first data communication device as in claim 17 further performing an operation of:

receiving the data from the second data communication device i) in accordance with the proposed data rate identified by the bandwidth metric, and ii) based on use of a non-acknowledgment data transmission protocol.

21. The first data communication device as in claim 17 further performing an operation of:

receiving the data from the second communication device based on use of UDP (User Data Protocol).

22. The first data communication device as in claim 17, wherein the first data communication device is a thin client in which a majority of data processing associated with a user at the thin client is performed at the second data communication device, the first data communication device performing an operation of:

utilizing the data received from the second data communication device to control a human interface device associated with the thin client.

23. The first data communication device as in claim 17, wherein the operation of generating the bandwidth metric is performed in response to receiving a request for bandwidth allocation received from the second data communication device.

24. The first data communication device as in claim 17 further performing an operation of:

receiving multiple bandwidth allocation requests associated with multiple processes maintained at the second data communication device, the multiple processes generating independent sets of data for transmission to the first data communication device; and

granting bandwidth, via transmission of multiple bandwidth metrics, to the second data communication device for streaming the independent sets of data associated with the multiple processes from the second data communication device to the first data communication device.

25. The first data communication device as in claim 17 further performing an operation of:

in addition to transmitting the bandwidth metric to the second data communication device, providing a unique identifier along with the bandwidth metric for use by the second data communication device to tag the future data transmitted from the second data communication device to the first data communication device.

26. The first data communication device as in claim 25 further performing operations of:

measuring a round trip time associated with communications between the first data communication device and the second data communication device based at least on part on a time difference between transmitting the bandwidth metric to the second data communication device and receiving a data packet from the second data communication device including the unique identifier; and

generating the bandwidth metric based on the actual bandwidth as well as the measured round trip time associated with communications between the first data communication device and the second data communication device.

27. The first data communication device as in claim 26, wherein the operation of measuring the round trip time includes:

measuring a time difference between transmitting a message to notify the second data communication device of the unique identifier and receiving a first data packet from the second data communication device including the unique identifier.

28. The first data communication device as in claim 17, wherein the operation of generating the bandwidth metric includes:

measuring a round trip time associated with communications between the first data communication device and the second data communication device; and

setting the bandwidth metric to be a higher value than the actual bandwidth if the measured round trip time is below a threshold value.

29. The first data communication device as in claim 17, wherein the operation of generating the bandwidth metric includes:

measuring a round trip time associated with communications between the first data communication device and the second data communication device; and

setting the bandwidth metric to be a lower value than the actual bandwidth if the measured round trip time is above a threshold value.

30. The first data communication device as in claim 17, wherein the operation of generating the bandwidth metric includes:

calculating the bandwidth metric based at least in part on: i) a current measured round trip time associated with communications between the first data communication device and the second data communication device, ii) a previously measured minimum round trip time associated with communications between the first data communication device and the second data communication

device, and iii) and a highest measured actual bandwidth associated with data received from the second data communication device.

31. The first data communication device as in claim 17, wherein the operation of generating the bandwidth metric includes generating the bandwidth metric based on a formula as follows:

$$\text{bandwidth metric} = \frac{(\text{currRTT} + \text{minRTT} + \text{MSDELAY}) * \text{avgbw}}{(2 * \text{currRTT})},$$

wherein currRTT = a current measured round trip time associated with communications between the first data communication device and the second data communication device;

wherein minRTT = a previously measured minimum round trip time associated with communications between the first data communication device and the second data communication device during a communication session;

wherein avgbw = a highest previously measured actual bandwidth associated with data received from the second data communication device; and

wherein MSDELAY = C + n * minRTT, where C is a constant and n is an integer.

32. The first data communication device as in claim 31, wherein the current measured round trip time and the previously measured round trip time take into account a time associated with the second data communication device i) receiving a first communication from the first data communication device and ii) transmitting a second communication, in response to receiving the first communication, to the first data communication device.

33. At a thin client that receives communications from a server over a network susceptible to congestion, a method for adaptively allocating bandwidth for use by the server to transmit information to the thin client, the method comprising:

receiving a bandwidth request message from the server, the bandwidth request message indicating a request by the server for an allocation of bandwidth to transmit data via a connectionless protocol from the server to the thin client;

measuring a rate of receiving data from the server;

measuring multiple round trip time values associated with communications between the receiver and the server at different times;

generating a bandwidth limit metric based on: i) a highest average rate of receiving the data from the server over a period of time, and ii) a most recently measured round trip time value associated with communications between the thin client and the server; and

transmitting the bandwidth limit metric to the server, the bandwidth limit metric identifying a data rate for transmitting further data from the server to the receiver.

34. A first data communication device that adaptively allocates bandwidth to a second data communication device for transmitting data over a network susceptible to congestion, the computer system including:

a processor;

a memory unit that stores instructions associated with an application executed by the processor;

a communication interface that supports communication with nodes in the network; and

an interconnect coupling the processor, the memory unit, and the communication interface, enabling the first data communication device to execute the application and perform operations of:

means for detecting an actual bandwidth associated with receiving data from the second data communication device;

means for generating a bandwidth metric based on the actual bandwidth associated with receiving the data, the bandwidth metric identifying a proposed data rate for transmitting future data from the second data communication device to the first data communication device; and

means for transmitting the bandwidth metric to the second data communication device.

35. A computer program product including a computer-readable medium having instructions stored thereon for processing data information, such that the instructions, when carried out by a processing device, enable the processing device to perform the steps of:

detecting an actual bandwidth associated with receiving data from the second data communication device;

generating a bandwidth metric based on the actual bandwidth associated with receiving the data, the bandwidth metric identifying a proposed data rate for transmitting future data from the second data communication device to the first data communication device; and

transmitting the bandwidth metric to the second data communication device.